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Mississippi Life Tables

1950-51

By
Morton B. King, Jr.
John N. Burrus
Harald A. Pedersen

Bureau of Public Administration
University of Mississippi

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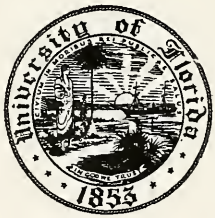

Mississippi Life Tables, 1950-51

By Sex, Race, and Residence

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Mississippi Life Tables, 1950-51

By Sex, Race, and Residence

By

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Sociological Study Series, No. 4

Bureau of Public Administration
University of Mississippi
University, Mississippi

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The Mississippi Program in Sociology and Anthropology is a joint undertaking in research and graduate training between the Division of Sociology and Rural Life at Mississippi State College and the Department of Sociology and Anthropology at the University of Mississippi. Approved by the Board of Trustees of the Institutions of Higher Learning of the State of Mississippi, the Program is open to sociologists and anthropologists in all schools of the state. The cooperating departments conduct research separately as well as jointly. Publication of the reports of joint projects will be rotated among the participating schools. *Mississippi Life Tables, 1950-51* is the first report so issued.

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Preface

The Bureau of Public Administration is pleased to be one of the publication outlets of the Mississippi Program in Sociology and Anthropology. The Sociology Study Series, of which this is Number 4, began as a cooperative venture of the Bureau and the (then) Department of Sociology at the University in presenting for citizens and public officials of Mississippi facts about the state, its people, and their problems. It is most appropriate, therefore, that we should now join with others who are working toward the same ends. Such joint efforts represent the most efficient use of research time and funds, and, multiplied, will insure the increasing social literacy of all citizens of the state.

The authors of this report represent departments at three state supported schools. Each is conducting independent research in population analysis. Dr. Burrus is Head of the Department of Sociology at Mississippi Southern College; Dr. King is Chairman of the Department of Sociology and Anthropology at the University of Mississippi; Dr. Pedersen is Associate Professor of Sociology and Rural Life in the Division of Sociology and Rural Life at Mississippi State College.

The computational work for this study was done at the University by Mrs. Dorothy Chipley and Mr. William J. Burney under the supervision of Dr. King. The three authors are responsible jointly for methodological decisions and interpretations of findings. Dr. King assembled and edited the final report.

The authors acknowledge with gratitude the following help and advice: the Faculty Research Program at the University of Mississippi for a grant of funds to Dr. King; Miss Margaret E. Rice, Supervisor of Public Health Statistics, Mississippi Board of Health, Dr. I. M. Moriyama of the National Office of Vital Statistics, U. S. Department of Health, Education and Welfare, and Dr. Howard G. Brunsman, Bureau of the Census, U. S. Department of Commerce for supplying special tabulations of data; Dr. Paul C. Glick, Bureau of the Census, and Dr. C. A. Mc-

Mahan, Air Force Personnel and Training Research Center, for technical advice.

Mississippi Life Tables, 1950-51 was made possible by the assistance and cooperation of many persons and agencies. The authors, however, assume responsibility for the facts and interpretations it contains.

ROBERT B. HIGHSAW, *Director*
Bureau of Public Administration
University of Mississippi

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PART I

Interpretation

INTRODUCTION

LIFE tables are an important tool of mortality research. In addition to estimating expectation of life, they present data needed to compute net reproduction rates, to estimate net migration, and to make a variety of mortality analyses. Their value is indicated by the increasing number and complexity of tables being produced.[1] To study differential mortality within a state, it is particularly valuable to have the expectation of life of major subgroups within the population. The purpose of this bulletin is to make available life table data, based on 1950 and 1951 deaths, for the Mississippi population cross-classified by sex, race, and residence. The method used is that developed by Reed and Merrell for constructing abridged tables.[2] Direct comparisons may be made with 1940-41 data prepared by Davies and Belcher.[3] Also available are Rice's life tables of Mississippi sex and racial groups for 1930, 1940, and 1950.[4] For no other state, perhaps, is this variety of life table data available.

The life table feature of greatest interest to most readers is expectation of life, to which the remainder of this discussion will be devoted. By expectation of life is meant the average number of years of life remaining to members of a group, *assuming* that current death rates continue. The phrases, "average future lifetime" and "average number of years of life remaining," also sug-

1 See historical sketch of development of life tables in the United States in McMahan, C. A., *Georgia Life Tables By Sex, Race, and Residence, 1940-41,* Atlanta: Georgia Department of Public Health, 1950, p. 1 ffl.

2 See Part III for detailed description of methodology.

3 Davies, Vernon and John C. Belcher, *Mississippi Life Tables By Sex, Race, and Residence, 1940,* (Mimeo), Jackson: Mississippi Commission on Hospital Care, 1948.

4 Rice, Margaret E. and Catherine Powell, *Life Tables for Mississippi, 1930-1940-1950,* Social Science Studies Demographic Series No. 1, Social Science Research Center, Mississippi State College, May 1954.

gest what is meant by expectation of life.[5] The last column (7) in each of the tables in Part II shows the life expectancies of persons in that sex-race-residence group. The values represent the average number of years of life remaining at the youngest age in each age-interval, but may be considered approximate for other ages in that interval.

Consider Table 1, for example. White urban males born in Mississippi in 1950 could expect to live on the average to be 63.93 years old. Such estimates are known as expectation of life at birth, and are those usually published in newspapers and similar sources. Obviously, some of these babies died in the first days and months of life. Others will normally live to be 100. Thus, life expectancy at birth, or at any age, tells us little about single individuals. However, it is accurate enough for groups of similar individuals to provide a secure basis for the life insurance business. Because of the high mortality of infants under one year of age, life expectation is longest between the ages of one and four. From Table 1 we see that urban white males aged one in 1950 had a (further) life expectancy of 65.78 years. White urban men who were 30 in 1950 might expect to live 38.51 more years; and those aged 80, 5.22 more years.

Many persons are interested in the total length of life which may be expected. Such an estimate may be approximated by applying the life expectancies to all ages in a class interval, and not just to the youngest age. For example, a white urban male aged 32 in 1950 might expect a total length of life of 70 years and about 6 months. This is obtained by adding 38 years and 6 months, the life expectation at age 30, to 32 years. Similarly, one aged 63 in 1950 might expect a total length of life of 77 years and 6 months; and one aged 81, 86 years and about 3 months.

Two further explanations may be helpful. The racial classification used is "white" and "nonwhite." In Mississippi, the preponderant majority of nonwhites are Negroes, although a few

[5] "Life expectancy" and "life expectation" are frequently used as shorter synonyms for the more formal and conventional "expectation of life."

Indians, Chinese, and Japanese are also included. For practical purposes, however, "nonwhite" and "Negro" may be considered synonymous, and hereafter the more familar "Negro" will be used. Two residence classifications are used, "urban" and "rural." The definition used is the same as that in the 1940-41 Davies-Belcher tables. By "urban" is meant all persons living in incorporated places of 2,500 population and larger. "Rural" includes all other Mississippians: those living in the suburbs of urban places, residents of smaller towns, farmers, and other open-country residents.

DIFFERENCES IN EXPECTATION OF LIFE

The following paragraphs call attention to a few of the main facts about expectation of life in Mississippi in 1950, with some comparisons with 1940. The reasons for these facts, and their significance, are difficult to determine. For adequate understanding, they must be analysed in a broader demographic, economic, and social context than this bulletin provides.[6]

Comparisons by Race

Life expectation at birth is, in general, greater for white than for Negro Mississippians. Differentials by sex and residence groups range from approximately 7 years to 11 years. For example, the life expectation at birth of white rural females is 10.26 years longer than that of Negroes of the same sex and residence. The advantage in longevity of the white group is consistent at all ages up to 70-74 when the pattern begins to break. However, the marked differences of the early years become small in the 50's and 60's. After age 70, some categories of Negroes appear to have more years of life remaining than do comparable white persons. This difference may be more apparent than real. The inaccuracies in age reporting are probably so great after about age

[6] A more comprehensive discussion of Mississippi mortality will be included in *Mississippi's People, 1950,* a forthcoming publication by the same authors and publisher.

65 that only large differences in expectation of life should be considered significant.[7]

Comparisons by Sex

It is generally known that women outlive men. The 1950 life tables confirm the fact that in Mississippi females have greater life expectancies than males of the same race and residence group, except for three advanced age categories of rural whites and urban Negroes. However, the size of this sex difference is not uniform. Among whites, females have definitely higher expectancies than males in both rural and urban groups. The difference is 6 to 8 years at birth, but declines gradually with age until after 70 there is little difference. Among Negroes, however, the higher life expectancy of females is slight, being almost non-existent in rural areas. In particular, the mortality of rural Negro men and women is highly similar between the ages of 5 and 50.

Comparison by Residence

The life expectation of rural persons is longer than that of urban dwellers at practically all ages. The difference, however, is very small. Among males, the difference is 3 or 4 years at birth and declines gradually with age until after 65 or 70 the expectation of life of rural and urban persons is similar. Among females, on the other hand, the difference between residential categories is very slight. This is particularly true of white females, where rural superiority is less than two years at birth and less than one year thereafter. Among Negro females, the difference in favor of rural residents is small but constant up to 60 years of age.

Summary

Age, race, sex, and residence differences in expectation of life may be briefly summarized. Life expectation is greatest

[7] The same is true for male-female and rural-urban comparisons, a safe conclusion being that the life expectancies of all aged persons are highly similar.

at age 1-4, after infant mortality is over, and declines steadily with advancing age. In general, whites outlive Negroes, females outlive males, and rural persons outlive urban residents. Such differences are greatest at birth, or shortly thereafter, and decline with increasing age. After about age 70, differences in life expectancy are small, and should be viewed with caution due to inaccurate age reporting. In 1950, the longest life expectancy at birth was that of white rural females and the shortest that of Negro urban males.

TRENDS IN EXPECTATION OF LIFE

Table 9 shows the life expectancies of the eight sex-race-residence groups for both 1940 and 1950.

All of the population groups had a longer life expectation, at all ages, in 1950 than in 1940. This increasing length of life reflects the continued downward trend in Mississippi death rates. The improvement of the various groups, however, was not equal. In race and residence, but not sex, those with the shortest expectation of life in 1940 improved the most. Life expectancy at birth increased more among Negroes than whites, and among urban than rural residents. On the other hand, the increase was greater for females than for males in the rural population, both white and Negro. The improvement of white urban males and females was approximately the same, while Negro urban males improved more than comparable females.

From 1940 to 1950, differences in expectation of life between the eight groups tended to become less. All rural-urban differences in life expectancy at birth declined significantly. Negro-white differences declined in the urban population, but stayed about the same in the rural. The trend of male-female differences was mixed, with female superiority actually increasing in the rural white population.

Three trends over the decade may be noted: 1. The average length of life of all groups increased. 2. In general, groups with the shortest life expectancy increased the most. 3. Racial and residential differences in expectation of life became less.

PART II

Life Tables

TABLE 1

LIFE TABLE FOR WHITE URBAN MALES, MISSISSIPPI, 1950-51

Age interval	Number surviving to exact age x out of 100,000 born alive	Probability of a person of exact age x dying within the interval x to x + n	Number dying in interval x to x + n	Number of years lived by cohort between age x and age x + n	Total years of life remaining to survivors at age x	Average number of years of life remaining at age x
x to x+n	l_x	$_nq_x$	$_nd_x$	$_nL_x$	T_x	e°_x
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Under 1	100,000	.042886	4289	96,895	6,392,763	63.93
1-4	95,711	.004836	463	381,702	6,295,868	65.78
5-9	95,248	.003243	309	475,373	5,914,166	62.09
10-14	94,939	.003343	317	473,949	5,438,793	57.29
15-19	94,622	.005535	524	471,864	4,964,844	52.48
20-24	94,098	.006677	628	469,031	4,492,980	47.75
25-29	93,470	.011338	1060	464,805	4,023,949	43.05
30-34	92,410	.012178	1125	459,350	3,559,144	38.51
35-39	91,285	.017505	1598	452,740	3,099,794	33.96
40-44	89,687	.029249	2623	442,333	2,647,054	29.51
45-49	87,064	.043455	3783	426,585	2,204,721	25.32
50-54	83,281	.073070	6085	401,992	1,778,136	21.35
55-59	77,196	.098753	7623	367,908	1,376,144	17.83
60-64	69,573	.155469	10816	321,974	1,008,236	14.49
65-69	58,757	.223618	13139	261,445	686,262	11.68
70-74	45,618	.290492	13252	194,929	424,817	9.31
75-79	32,366	.401249	12987	128,821	229,888	7.10
80-84	19,379	.550018	10659	68,903	101,067	5.22
85-89	8,720	.748691	6529	25,393	32,164	3.69
90-94	2,191	.736017	1613	5,678	6,771	3.09
95-99	578	.965265	558	1,093	1,093	1.89
100 & over	20	.....	.....	.....	.....	....

Table 2

LIFE TABLE FOR WHITE URBAN FEMALES, MISSISSIPPI, 1950-51

Age interval	Number surviving to exact age x out of 100,000 born alive	Probability of a person of exact age x dying within the interval x to x + n	Number dying in interval x to x + n	Number of years lived by cohort between age x and age x + n	Total years of life remaining to survivors at age x	Average number of years of life remaining at age x
x to x+n	l_x	$_nq_x$	$_nd_x$	$_nL_x$	T_x	$e°_x$
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Under 1	100,000	.031243	3124	97,738	7,191,247	71.91
1-4	96,876	.005650	547	386,088	7,093,509	73.22
5-9	96,329	.002694	260	480,916	6,707,421	69.63
10-14	96,069	.003393	326	479,531	6,226,505	64.81
15-19	95,743	.002794	268	478,038	5,746,974	60.03
20-24	95,475	.003093	295	476,690	5,268,936	55.19
25-29	95,180	.005436	517	474,685	4,792,246	50.35
30-34	94,663	.007074	670	471,695	4,317,561	45.61
35-39	93,993	.008266	777	468,120	3,845,866	40.92
40-44	93,216	.012178	1135	463,559	3,377,746	36.24
45-49	92,081	.024909	2294	454,977	2,914,187	31.65
50-54	89,787	.029151	2617	442,740	2,459,210	27.39
55-59	87,170	.045468	3963	426,537	2,016,470	23.13
60-64	83,207	.065722	5469	403,409	1,589,933	19.11
65-69	77,738	.115554	8983	367,767	1,186,524	15.26
70-74	68,755	.186762	12841	313,217	818,757	11.91
75-79	55,914	.293147	16391	239,370	505,540	9.04
80-84	39,523	.419334	16573	155,621	266,170	6.73
85-89	22,950	.596811	13697	78,557	110,549	4.82
90-94	9,253	.779178	7210	25,687	31,992	3.46
95-99	2,043	.706235	1443	6,305	6,305	3.09
100 & over	600	.....	.....	.....	.....	....

Table 3

LIFE TABLE FOR NONWHITE URBAN MALES, MISSISSIPPI, 1950-51

Age interval	Number surviving to exact age x out of 100,000 born alive	Probability of a person of exact age x dying within the interval x to x + n	Number dying in interval x to x + n	Number of years lived by cohort between age x and age x + n	Total years of life remaining to survivors at age x	Average number of years of life remaining at age x
x to x+n	l_x	$_nq_x$	$_nd_x$	$_nL_x$	T_x	e^o_x
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Under 1	100,000	.067551	6755	95,109	5,655,838	56.56
1-4	93,245	.013454	1255	369,718	5,560,729	59.64
5-9	91,990	.005833	537	458,443	5,191,011	56.43
10-14	91,453	.008514	779	455,444	4,732,568	51.75
15-19	90,674	.012673	1149	450,724	4,277,124	47.17
20-24	89,525	.020796	1862	443,187	3,826,400	42.74
25-29	87,663	.025007	2192	432,914	3,383,213	38.59
30-34	85,471	.026226	2242	421,848	2,950,299	34.52
35-39	83,229	.031975	2661	410,021	2,528,451	30.38
40-44	80,568	.059315	4779	391,260	2,118,430	26.29
45-49	75,789	.058324	4420	368,670	1,727,170	22.79
50-54	71,369	.119121	8502	336,818	1,358,500	19.03
55-59	62,867	.164158	10320	288,865	1,021,682	16.25
60-64	52,547	.191911	10084	237,516	732,817	13.95
65-69	42,463	.242101	10280	186,512	495,301	11.66
70-74	32,183	.297961	9589	136,861	308,789	9.59
75-79	22,594	.437440	9884	87,457	171,928	7.61
80-84	12,710	.451214	5735	47,949	84,471	6.65
85-89	6,975	.547838	3821	24,577	36,522	5.24
90-94	3,154	.683871	2157	9,777	11,945	3.79
95-99	997	.936072	933	2,168	2,168	2.17
100 & over	64	.....	.....	.....	.....	....

TABLE 4

LIFE TABLE FOR NONWHITE URBAN FEMALES, MISSISSIPPI, 1950-51

Age interval	Number surviving to exact age x out of 100,000 born alive	Probability of a person of exact age x dying within the interval x to x + n	Number dying in interval x to x + n	Number of years lived by cohort between age x and age x + n	Total years of life remaining to survivors at age x	Average number of years of life remaining at age x
x to x+n	l_x	$_nq_x$	$_nd_x$	$_nL_x$	T_x	$e°_x$
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Under 1	100,000	.052701	5270	96,185	6,028,125	60.28
1-4	94,730	.009549	905	376,581	5,931,940	62.62
5-9	93,875	.004390	412	467,969	5,555,359	59.21
10-14	93,413	.004141	387	466,162	5,087,390	54.46
15-19	93,026	.007769	723	463,496	4,621,228	49.68
20-24	92,303	.013266	1224	458,628	4,157,732	45.04
25-29	91,079	.017111	1558	451,738	3,699,104	40.61
30-34	89,521	.026372	2361	441,937	3,247,366	36.27
35-39	87,160	.030803	2685	429,438	2,805,429	32.19
40-44	84,475	.047909	4047	412,911	2,375,991	28.13
45-49	80,428	.072325	5817	388,559	1,963,080	24.41
50-54	74,611	.116090	8662	351,993	1,574,521	21.10
55-59	65,949	.131323	8661	308,315	1,222,528	18.54
60-64	57,288	.169949	9736	261,925	914,213	15.96
65-69	47,552	.164370	7816	218,346	652,288	13.72
70-74	39,736	.260253	10341	173,136	433,942	10.92
75-79	29,395	.316425	9301	123,364	260,806	8.87
80-84	20,094	.428856	8617	78,404	137,442	6.84
85-89	11,477	.591537	6789	39,243	59,038	5.14
90-94	4,688	.640232	3001	14,804	19,795	4.22
95-99	1,687	.800985	1351	4,991	4,991	2.96
100 & over	336	.....	.....	.....	.....	....

Table 5

LIFE TABLE FOR WHITE RURAL MALES, MISSISSIPPI, 1950-51

Age interval	Number surviving to exact age x out of 100,000 born alive	Probability of a person of exact age x dying within the interval x to x + n	Number dying in interval x to x + n	Number of years lived by cohort between age x and age x + n	Total years of life remaining to survivors at age x	Average number of years of life remaining at age x
x to x+n	l_x	${}_nq_x$	${}_nd_x$	${}_nL_x$	T_x	e°_x
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Under 1	100,000	.028052	2805	97,969	6,770,442	67.70
1-4	97,195	.006037	587	387,242	6,672,473	68.65
5-9	96,608	.002744	265	482,298	6,285,231	65.06
10-14	96,343	.004490	433	480,725	5,802,933	60.23
15-19	95,910	.007372	707	477,908	5,322,208	55.49
20-24	95,203	.010893	1037	473,485	4,844,300	50.88
25-29	94,166	.010646	1002	468,337	4,370,815	46.42
30-34	93,164	.011733	1093	463,178	3,902,478	41.89
35-39	92,071	.015635	1440	456,896	3,439,300	37.35
40-44	90,631	.019571	1774	449,002	2,982,404	32.91
45-49	88,857	.031337	2785	437,831	2,533,402	28.51
50-54	86,072	.048961	4214	420,508	2,095,571	24.35
55-59	81,858	.074141	6069	394,911	1,675,063	20.46
60-64	75,789	.105861	8023	359,778	1,280,152	16.89
65-69	67,766	.152599	10341	314,176	920,374	13.58
70-74	57,425	.239813	13771	253,677	606,198	10.56
75-79	43,654	.344801	15052	180,792	352,521	8.08
80-84	28,602	.506949	14500	105,509	171,729	6.00
85-89	14,102	.641163	9042	45,643	66,220	4.70
90-94	5,060	.719765	3642	14,461	20,577	4.07
95-99	1,418	.509077	722	6,116	6,116	4.31
100 & over	696	.....	.....	.....	.....	....

Table 6

LIFE TABLE FOR WHITE RURAL FEMALES, MISSISSIPPI, 1950-51

Age interval	Number surviving to exact age x out of 100,000 born alive	Probability of a person of exact age x dying within the interval x to x + n	Number dying in interval x to x + n	Number of years lived by cohort between age x and age x + n	Total years of life remaining to survivors at age x	Average number of years of life remaining at age x
x to x+n	l_x	$_nq_x$	$_nd_x$	$_nL_x$	T_x	$e°_x$
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Under 1	100,000	.022559	2256	98,367	7,315,296	73.15
1-4	97,744	.004952	484	389,706	7,216,929	73.84
5-9	97,260	.002594	252	485,596	6,827,223	70.20
10-14	97,008	.001497	145	484,685	6,341,627	65.37
15-19	96,863	.002993	290	483,640	5,856,942	60.47
20-24	96,573	.003991	385	481,959	5,373,302	55.64
25-29	96,188	.005833	561	479,598	4,891,343	50.85
30-34	95,627	.007074	676	476,521	4,411,745	46.13
35-39	94,951	.009755	926	472,590	3,935,224	41.44
40-44	94,025	.014798	1391	466,873	3,462,634	36.83
45-49	92,634	.021727	2013	458,326	2,995,761	32.34
50-54	90,621	.025348	2297	447,616	2,537,435	28.00
55-59	88,324	.036519	3226	434,174	2,089,819	23.66
60-64	85,098	.061911	5269	413,391	1,655,645	19.46
65-69	79,829	.104959	8379	379,723	1,242,254	15.56
70-74	71,450	.176241	12592	327,545	862,531	12.07
75-79	58,858	.287170	16902	253,298	534,986	9.09
80-84	41,956	.444572	18652	162,409	281,688	6.71
85-89	23,304	.572578	13343	80,756	119,279	5.12
90-94	9,961	.712909	7101	29,719	38,523	3.87
95-99	2,860	.749689	2144	8,804	8,804	3.08
100 & over	716	.....	.....	.....	.....	....

Table 7

LIFE TABLE FOR NONWHITE RURAL MALES, MISSISSIPPI, 1950-51

Age interval	Number surviving to exact age x out of 100,000 born alive	Probability of a person of exact age x dying within the interval x to x + n	Number dying in interval x to x + n	Number of years lived by cohort between age x and age x + n	Total years of life remaining to survivors at age x	Average number of years of life remaining at age x
x to x+n	l_x	$_nq_x$	$_nd_x$	$_nL_x$	T_x	$e°_x$
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Under 1	100,000	.051917	5192	96,241	6,114,085	61.14
1-4	94,808	.012196	1156	376,193	6,017,844	63.47
5-9	93,652	.004939	463	466,963	5,641,651	60.24
10-14	93,189	.005535	516	464,768	5,174,688	55.53
15-19	92,673	.010844	1005	461,094	4,709,920	50.82
20-24	91,668	.018292	1677	454,377	4,248,826	46.35
25-29	89,991	.023441	2109	444,815	3,794,449	42.16
30-34	87,882	.026274	2309	433,714	3,349,634	38.12
35-39	85,573	.028956	2478	421,787	2,915,920	34.08
40-44	83,095	.034635	2878	408,522	2,494,133	30.02
45-49	80,217	.045276	3632	392,674	2,085,611	26.00
50-54	76,585	.079436	6084	368,557	1,692,937	22.11
55-59	70,501	.108880	7676	334,010	1,324,380	18.79
60-64	62,825	.149975	9422	290,933	990,370	15.76
65-69	53,403	.176492	9425	243,909	699,437	13.10
70-74	43,978	.263993	11610	191,224	455,528	10.36
75-79	32,368	.344396	11147	133,667	264,304	8.17
80-84	21,221	.477911	10142	79,886	130,637	6.16
85-89	11,079	.631976	7002	36,396	50,751	4.58
90-94	4,077	.727668	2967	11,710	14,355	3.52
95-99	1,110	.876022	972	2,645	2,645	2.38
100 & over	138	.....	.....	.....	.....	....

Table 8

LIFE TABLE FOR NONWHITE RURAL FEMALES, MISSISSIPPI, 1950-51

Age interval	Number surviving to exact age x out of 100,000 born alive	Probability of a person of exact age x dying within the interval x to x + n	Number dying in interval x to x + n	Number of years lived by cohort between age x and age x + n	Total years of life remaining to survivors at age x	Average number of years of life remaining at age x
x to x+n	l_x	${}_nq_x$	${}_nd_x$	${}_nL_x$	T_x	e°_x
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Under 1	100,000	.040271	4027	97,084	6,286,374	62.86
1-4	95,973	.010164	975	381,316	6,189,290	64.49
5-9	94,998	.004590	436	473,771	5,807,974	61.14
10-14	94,562	.003343	316	472,133	5,334,203	56.41
15-19	94,246	.010399	980	468,996	4,862,070	51.59
20-24	93,266	.014502	1353	463,224	4,393,074	47.10
25-29	91,913	.025104	2307	453,963	3,929,850	42.76
30-34	89,606	.023979	2149	442,761	3,475,887	38.79
35-39	87,457	.031967	2796	430,563	3,033,126	34.68
40-44	84,661	.040618	3439	415,008	2,602,563	30.74
45-49	81,222	.052248	4244	396,002	2,187,555	26.93
50-54	76,978	.075956	5847	370,834	1,791,553	23.27
55-59	71,131	.097571	6940	338,962	1,420,719	19.97
60-64	64,191	.140196	8999	298,736	1,081,757	16.85
65-69	55,192	.149975	8277	255,919	783,021	14.19
70-74	46,915	.258473	12126	204,777	527,103	11.24
75-79	34,789	.309030	10751	146,693	322,326	9.27
80-84	24,038	.429780	10331	93,564	175,633	7.31
85-89	13,707	.504786	6919	49,973	82,069	5.99
90-94	6,788	.627451	4259	22,178	32,096	4.73
95-99	2,529	.619761	1567	9,918	9,918	3.92
100 & over	962	.....	.....	.....	.....	....

Table 9

LIFE EXPECTANCY IN MISSISSIPPI, 1940 and 1950

Age Interval	WHITE							
	Urban				*Rural*			
	Male		*Female*		*Male*		*Female*	
	1940 (1)	1950 (2)	1940 (3)	1950 (4)	1940 (5)	1950 (6)	1940 (7)	1950 (8)
Under 1	57.2	63.9	65.1	71.9	64.0	67.7	67.7	73.2
1-4	61.1	65.8	68.3	73.2	66.3	68.7	69.5	73.8
5-9	58.1	62.1	65.1	69.6	63.1	65.1	66.4	70.2
10-14	53.4	57.3	60.5	64.8	58.5	60.2	61.7	65.4
15-19	48.8	52.5	55.9	60.0	53.8	55.5	56.9	60.5
20-24	44.4	47.8	51.3	55.2	49.2	50.9	53.2	55.6
25-29	40.1	43.1	46.7	50.4	44.8	46.4	47.6	50.9
30-34	35.8	38.5	42.1	45.6	40.4	41.9	43.0	46.1
35-39	31.5	34.0	37.6	40.9	36.0	37.4	38.5	41.4
40-44	27.3	29.5	33.0	36.2	31.7	32.9	34.0	36.8
45-49	23.4	25.3	28.7	31.7	27.3	28.5	29.6	32.3
50-54	19.8	21.4	24.5	27.4	23.3	24.4	25.4	28.0
55-59	16.4	17.8	20.4	23.1	19.3	20.5	21.2	23.7
60-64	13.4	14.5	16.7	19.1	15.8	16.9	17.3	19.5
65-69	10.6	11.7	13.1	15.3	12.4	13.6	13.5	15.6
70-74	8.3	9.3	10.1	11.9	9.6	10.6	10.2	12.1
75-79	6.1	7.1	7.8	9.0	7.7	8.1	7.7	9.1
80-84	4.7	5.2	5.6	6.7	5.1	6.0	5.5	6.7
85-89	3.4	3.7	4.0	4.8	3.5	4.7	4.2	5.1
90-94	2.7	3.1	2.7	3.5	2.5	4.1	3.2	3.9
95-99	...	1.9	...	3.1	2.3	4.3	...	3.1

TABLE 9 (continued)

LIFE EXPECTANCY IN MISSISSIPPI, 1940 and 1950

Age Interval	NONWHITE							
	Urban				*Rural*			
	Male		*Female*		*Male*		*Female*	
	1940 (9)	1950 (10)	1940 (11)	1950 (12)	1940 (13)	1950 (14)	1940 (15)	1950 (16)
Under 1	46.7	56.6	51.7	60.3	56.3	61.1	57.3	62.9
1-4	52.0	59.6	55.6	62.6	59.8	63.5	59.9	64.5
5-9	49.4	56.4	52.9	59.2	56.9	60.2	56.9	61.1
10-14	45.0	51.8	48.2	54.5	52.3	55.5	52.0	56.4
15-19	40.4	47.2	43.5	49.7	47.6	50.8	47.3	51.6
20-24	36.4	42.7	39.8	45.0	43.3	46.4	43.1	47.1
25-29	33.1	38.6	36.2	40.6	39.5	42.2	39.2	42.8
30-34	29.6	34.5	32.3	36.3	35.5	38.1	35.3	38.8
35-39	26.3	30.4	28.7	32.2	31.6	34.1	31.5	34.7
40-44	22.7	26.3	25.2	28.1	27.9	30.0	27.8	30.7
45-49	19.6	22.8	22.3	24.4	24.2	26.0	24.4	26.9
50-54	17.0	19.0	19.3	21.1	20.8	22.1	21.0	23.3
55-59	14.8	16.3	17.3	18.5	17.8	18.8	18.1	20.0
60-64	12.6	14.0	15.7	16.0	15.1	15.8	15.4	16.9
65-69	9.9	11.7	12.3	13.7	11.9	13.1	12.5	14.2
70-74	7.7	9.6	9.4	10.9	9.1	10.4	9.4	11.2
75-79	5.6	7.6	7.2	8.9	6.7	8.2	7.0	9.3
80-84	4.3	6.7	5.1	6.8	4.8	6.2	4.9	7.3
85-89	3.0	5.2	3.1	5.1	3.2	4.6	3.7	6.0
90-94	...	3.8	...	4.2	2.2	3.5	2.7	4.7
95-99	...	2.2	...	3.0	...	2.4	...	3.9

SOURCE:

1950 values from column 7, Tables 1-8.

1940 values from pp. 4-11, Davies, Vernon and John C. Belcher, *Mississippi Life Tables By Sex, Race and Residence, 1940,* (mimeo), Jackson: Mississippi Commission on Hospital Care, 1948.

PART III

Description of Methods

In computing life tables, many methodological questions have to be faced. For some there is no satisfactory solution, making arbitrary decisions inevitable. In the following statement, we have tried to describe, without apology and as precisely as possible, the actual procedures used. This will enable the reader to make his own evaluation and determine the degree of caution with which he will use the result.

CONSTRUCTING THE TABLES

The Reed-Merrell method for constructing abridged life tables was followed. While their report[1] was carefully studied, computations were based on Hagood's instructions.[2] In only two instances did we depart from the Hagood model. First, the values in column 3 ($_nq_x$, probability of a person age x dying within the interval) were carried to 6 rather than 5 decimal places. All other values were rounded off to the same number of places as Hagood, using the system she suggests.[3] Secondly, in using appendix tables to convert age-specific death rates to probabilities, two rates were larger than any $_5m_x$ value in Table I. Both were in the 95-99 age interval: white urban male, .600000; and nonwhite urban male, .500000. By use of the formula for converting $_5m_x$, $_5q_x = 1-e^{-5\ {}_5m_x - .008\ (5)^3\ {}_5m_x^2}$, probabilities of .965265 and .936072 (respectively) were obtained.[4]

Two computers took the probabilities and worked independently to the life expectancies. Their work was compared and, where discrepancies were found, one of the authors determined the correct value.

1 Reed, Lowell J. and Margaret Merrell, "A Short Method for Constructing An Abridged Life Table," U. S. Department of Commerce, Bureau of the Census, *Vital Statistics: Special Reports,* Vol. 9, No. 54, June 25, 1940.
2 Hagood, Margaret Jarman, *Statistics For Sociologists,* N. Y.: Henry Holt and Co., 1941, pp. 875-881.
3 *Ibid.,* p. 121.
4 *Ibid.,* p. 913.

CALCULATING AGE-SPECIFIC DEATH RATES

The Mississippi State Board of Health supplied special tabulations of Mississippi deaths in 1951 by place of usual residence for the state as a whole and for the urban population. The definition of urban used was "residents of all the towns of 2,500 and over according to the 1950 census." Not included was "the combination of Mississippi City-Handsboro nor the urbanized area surrounding Jackson."[5] Both tabulations were cross-classified by sex and race (white-nonwhite) and provided the following age categories: unknown, under 1, 1, 2, 3, 4, 5-9, thence by 5-year age intervals to 95-99, and 100 and over. By subtracting urban from total deaths, the number of rural deaths in each of the above categories was obtained. The deaths for ages 1, 2, 3, and 4 were combined to provide one category 1-4.

The National Office of Vital Statistics supplied special tabulation VS 417,[6] "Deaths by Age, Race, and Sex in Urban and Rural Areas: Mississippi, 1950 (by place of residence)." Race is divided into white and nonwhite and "urban includes all incorporated places of 2,500 or more, as enumerated in the 1950 census." The age categories used were: not stated, under 1, under 5, 5-9, thence by 5-year age intervals to 95-99, and 100 and over. The only computation needed was that to obtain the 1-4 categories by subtracting under 1 from under 5.

Deaths for 1949 using the "old urban" definition and 1950 city size by five-year age intervals were not available from either N.O.V.S. or the Mississippi State Board of Health.

Computation of two-year average age-specific death rates based on deaths in 1950 and 1951 was done according to methods described in Hagood.[7]

It was necessary to estimate population bases as of January 1, 1951. The method used for each of the eight sex-race-residence

[5] Letter dated Feb. 4, 1954 from Miss Margaret E. Rice, Supervisor of Public Health Statistics, Mississippi State Board of Health. The authors express their indebtedness to Miss Rice for her help and cooperation.

[6] The authors wish to thank Dr. I. M. Moriyama of N.O.V.S. for his help and advice.

[7] Hagood, *op. cit.*, Table 125, pp. 872-3.

groups was as follows: For each of the age categories, the population on April 1, 1950 and April 1, 1940 was obtained. The average amount of change per quarter during the decade was obtained by subtracting the 1940 from the 1950 values and dividing by 40. Each of these values was multiplied by 3 and added to the proper April 1, 1950 population group.

The problem, here, was to obtain the 1940 and 1950 populations in the proper age categories. The values for both years for under 5, 5-9, thence by 5-year intervals through 70-74 were obtained from Table 15, pp. 24, 25 of *1950 U. S. Census of Population,* General Characteristics, Mississippi (P-B24). For 1950, the number of persons under 1 in each category was obtained from a special tabulation furnished by the Bureau of the Census.[8] The values for the 1-4 category were obtained by subtractions from under 5. For 1940, the number of persons under 1 was obtained from Table 7, pp. 14-16, *1940 U. S. Census of Population,* Characteristics of the Population, (Second Series), Mississippi, and the 1-4 values obtained as above.

The 1940 values for the age categories 75-79, 80-84, 85-89, 90-94, 95-99, and 100 and over were rendered from Tables 1 and 3, pp. 5-7, *1940 U. S. Census of Population,* Characteristics By Age, (Fourth Series), Mississippi.

The only source discovered for 1950 population figures in the upper-age groups cross-classified by sex, race, and residence was Table 52, p. 124, in the *1950 U. S. Census of Population,* Detailed Characteristics, Mississippi, (P-C24). The values are for single years of age and are estimates based on a 20 per cent sample and upon the "new urban" definition. The totals of the sex-race-residence groups do not equal those actually enumerated under either the old or the new urban definition. The values over 74 were combined into the age categories 75-79, 80-84, 85-89, 90-94, 95-99, and 100 and over. Then, for each sex-race-residence group,

[8] "Population Under 1 Year Old by Color and Sex, Under Old and New Urban-Rural Definitions, For Mississippi: 1950." Furnished Dr. John Burrus by Dr. Howard G. Brunsman, Bureau of the Census, for whose assistance the authors are grateful.

the total number enumerated by the Census (old urban definition) as being 75 and over (table 15, p. 24, P-B24) was distributed according to the values in the above categories. (See sample work table for urban nonwhite males, attached.) The values thus obtained were those used for the April 1, 1950 population in estimating the January 1, 1951 populations in the age groups beyond 74 years. If one trusts the accuracy of the census estimates, the only assumption made was that the age distribution of persons of a given sex-race-residence category would be the same whether the "old" or the "new" urban definition was used. Involved are 3,400 persons in the Mississippi City-Handsboro unincorporated area on the Gulf Coast and 1,990 persons in the urbanized area around Jackson. Considering the known inaccuracies in the reporting of the age of persons (living and dying) 75 years and over, the inaccuracy introduced by use of the assumption was thought acceptable.

SAMPLE WORK TABLE NO. 1

URBAN NONWHITE MALE

(1) Age Groups	(2) Estimated Population	(3) Redistribution (2) x K	(4) Round Off
75-79	1120	1059.356	1059
80-84	625	591.158	591
85-89	215	203.358	203
90-94	70	66.209	66
95-99	10	9.458	10
100 & up	10	9.458	10
Total	2050	1938.997	1939
(Enumerated Total, "old definition".....			1939)

a=1939=total 75 and over, (actual count, old urban definition), Table 15, p. 24, P-B24.

b=2050=total 75 and over, (estimate, new urban definition), Table 52, p. 124, P-C24.

K=a/b=1939/2050=.9458536.

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